

## AMSAT News Service Weekly Bulletins

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AMSAT NEWS SERVICE

ANS-275

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on <http://www.amsat.org> publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to: [ans-editor \[at\] amsat.org](mailto:ans-editor@amsat.org).

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see: <https://mailman.amsat.org/postorius/lists/ans.amsat.org/>

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ANS-275 AMSAT News Service Weekly Bulletins

To: All RADIO AMATEURS

From: Radio Amateur Satellite Corporation

712 H Street NE, Suite 1653

Washington, DC 20002

DATE 2022 Oct 2

Final Call for Papers - 2022 AMSAT Space Symposium & Annual General Meeting

This is a call for papers for the 40th annual AMSAT Space Symposium to be held on the weekend of October 21-22, 2022 at the Crowne Plaza Suites hotel in Bloomington, Minnesota.

Proposals for symposium papers and presentations are invited on any topic of interest to the amateur satellite community. We request a tentative title of your presentation as soon as possible, with final copy submitted by October 14 for inclusion in the symposium proceedings. Abstracts and papers should be sent to Dan Schultz, N8FGV at [n8fgv at amsat.org](mailto:n8fgv@amsat.org)

[ANS thanks Dan Schultz, N8FGV, AMSAT Symposium Proceedings Editor, for the above information.]

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The 2022 AMSAT President's Club coins have arrived!

To commemorate the 50th anniversary of its launch on October 15, 1972, this year's coin features an image of AMSAT-OSCAR 6.

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The 40th AMSAT Space Symposium and Annual General Meeting will take place in Bloomington, Minnesota, on Oct. 21-22, 2022. Highlights of all scheduled events include:

- A preliminary schedule is available on the AMSAT Member Portal, [launch.amsat.org](https://launch.amsat.org), under the Events tab.

SUNDAY, OCTOBER 2ND IS THE DEADLINE FOR RESERVING A HOTEL ROOM AT THE REDUCED RATE! You can make hotel reservations by calling the hotel directly at (952) 854-9000. The group code is ASG (Amateur Satellite Group). Hotel reservations can also be made online at the following link:  
<https://tinyurl.com/ANS-219-Symposium-Rooms>.

Symposium tickets and banquet reservations may be purchased on the AMSAT Member Portal. Log into <https://launch.amsat.org/> and click on the Events tab.

We at AMSAT, are excited to be able to host an in-person Symposium this year. We hope that you can join us in celebrating Amateur Radio in Space.

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The talks given at the AMSAT-UK International Space Colloquium will be streamed live to a global audience over the weekend of October 8-9, 2022. The weekend event attracts an international audience that ranges from those involved in building and operating Amateur Radio satellites to beginners who wish to find out more about this fascinating branch of the hobby. There will be including a roundup of a number of new live and potential spacecraft projects that are under investigation and/or development.

The streaming on Saturday will run from 0830-1645 GMT and from 0830-1415 GMT on Sunday.

The streaming URL is <https://batc.org.uk/live/amsatuk2022>.

A link to the schedule of talks is available at <https://amsat-uk.org/colloquium/>.

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Satellites that are no longer in service must get out of the sky far more quickly under a new rule adopted by US federal regulators Thursday – and it's all in the name of combating the garbage in Earth's orbit.

Unused satellites in low-Earth orbit, which is the area already most congested with satellites, must be dragged out of orbit "as soon as practicable, and no more than five years following the end of their mission," according to the new Federal Communications Commission rule.

That's far less time than the long-standing rule of 25 years that has been criticized as too lax. Even NASA advised years ago that the 25-year timeline should be reduced to five years.

"Twenty-five years is a long time. There is no reason to wait that long anymore, especially in low-Earth orbit," FCC Chairwoman Jessica Rosenworcel said at Thursday's meeting. The FCC rule passed unanimously.

The goal of this rule is prevent the dangerous proliferation of junk and debris in space. Already, there's estimated to be more than 100 million pieces of space junk traveling uncontrolled through orbit, ranging in size from a penny to an entire rocket booster. Much of that debris, experts say, is too small to track.

Collisions in space have happened before. And each collision can span thousands of new pieces of debris, each of which risk setting off even more collisions. One well-known theory, called "Kessler Syndrome," warns that it's possible for spaceborne garbage to set off disastrous chain reactions, potentially causing Earth's orbit to become so cluttered with junk that it could render future space exploration and satellite launches impractical and even impossible.

More than half of the roughly 10,000 satellites the world has sent into orbit since the 1950's are now obsolete and considered "space junk," Rosenworcel said, adding that the debris poses risks to communication and safety.

The FCC plan had been questioned by some US lawmakers who have said the rules could create "conflicting guidance" and without clear congressional authority. But Thursday's vote moved forward nonetheless.

"At risk is more than the \$279 billion-a-year satellite and launch industries and the jobs that depend on them," according to an FCC document released earlier this month. "Left unchecked, orbital debris could block all of these benefits and reduce opportunities across nearly every sector of our economy."

The number of satellites in low-Earth orbit, which is the sphere of orbit extending about 2,000 km or 1,200 miles out, has grown exponentially in recent years, thanks in large part to massive, new "megaconstellations" of small satellites pouring into space, largely by commercial companies. Most notably, Elon Musk's SpaceX has launched about 3,000 satellites to space for its space-based internet service, Starlink.

There's also plans to put tens of thousands of new satellites in low-Earth orbit in years to come, FCC commissioner Nathan Simington noted during Thursday's meeting.

Commercial companies have routinely promised to take the debris issue seriously, and SpaceX had already agreed to comply with the recommended five-year rule for getting defunct satellites out of orbit.

But there has long been a broader push within the space community to codify new regulations. So the FCC announced plans in early September to at least vote on updates to US regulations.

The FCC also specified that it will apply the rule not only to the US satellite operators it oversees but also to "non-US-licensed satellites and systems seeking US market access."

"A veritable Cambrian explosion of commercial space operations is just over the horizon, and we had better be ready when it arrives," said Simington.

[ANS thanks CNN.com for the above information.]

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Need new satellite antennas? Purchase Arrows, Alaskan Arrows,  
and M2 LEO-Packs from the AMSAT Store. When you purchase through  
AMSAT, a portion of the proceeds goes towards  
Keeping Amateur Radio in Space.  
<https://amsat.org/product-category/hardware/>

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IARU Coordinates Frequencies for CosmoGirlSat

CosmoGirlSat is a 1U CubeSat mission with three-fold communications capabilities: 1) An automatic Packet Reporting System (APRS) Digipeater - APRS shall provide digital message relay service to the Amateur Radio community by means of digipeating. 2) Picture Data Transmission - The satellite carries a high resolution camera, which can take pictures of the earth which can be downloaded to the ground stations. 3) Short Text Message Transmission - Short text messages uplinked on UHF signals by Radio Amateurs are stored on the satellite. UHF request commands from the ground station triggers the downlink of the stored messages. One stored message is randomly picked up and downlinked to Amateur Radio stations on GMSK signal. CosmoGirlSat will be deployed from the ISS. A CW beacon and 4k8 GMSK telemetry downlink on 437.120 MHz has been coordinated together with the APRS digipeater on 145 825 MHz\*\*

[ANS thanks the IARU for the above information.]

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#### Zimbabwe Amateur Radio Satellite Launch Imminent

Independent Online, a South African newspaper reports Zimbabwe's first satellite ZimSat-1, carrying an Amateur Radio APRS digipeater is expected to be launched to the ISS in October. The IOL article says the satellite will host a multispectral camera and image classification tool, as well as a device to transmit and receive signals from amateur radio operators.

Named ZimSat-1, the Sunday Mail in Zimbabwe reported that the nanosatellite will reach the International Space Station next month before its launch into orbit, scheduled for November. ZimSat-1 will be on board the Cygnus NG-18, an uncrewed spacecraft that provides commercial cargo resupply to the International Space Station on behalf of the National Aeronautics and Space Administration (NASA), when it is released into space in October," the state-owned newspaper reported online.

Zimbabwe's ambitious satellite is reportedly scheduled to reach the International Space Station by October 28, before being launched from the Japanese Kibo – the Asian country's science module for the International Space Station.

[ANS thanks Southgate Amateur Radio News for the above information.]

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#### China CAS-10 Ham Radio Satellite to Launch in November

CAMSAT reports the CAS-10 (XW-4) amateur radio satellite with a V/U linear transponder, is expected to be launched to the Tiangong Space Station on November 7, 2022.

On the AMSAT bulletin board Alan Kung BA1DU posted:

The CAMSAT CAS-10 (XW-4) amateur satellite has been shipped to the Wenchang Satellite Launch Center in Hainan China, and has been installed in the Tianzhou-5 cargo spacecraft, which is scheduled to be launched on November 6 using the Long March 7 launch vehicle to China Tiangong Space Station.

The CAS-10 (XW-4) satellite will deploy from the space station into its own orbit around December 15, and the amateur radio payload will be operational immediately after that time. The specific deployment time and satellite orbit TLE will be announced later.

The IARU satellite frequency coordination page reports:

An 8U CubeSat approx 228 x455x 100mm 12kg Mass. A follow on mission from CAS-9 and also known as Hope-4 (XW-4) Carrying a V/U Mode Linear Transponder, a UHF - CW Telemetry Beacon, a UHF - AX.25 4.8k/9.6kbps GMSK Telemetry downlink and a space camera.

1. CAS-10 carries a VHF uplink and UHF downlink linear transponder with a bandwidth of 30kHz. This transponder will work all day during the life cycle of the satellite, and amateur radio enthusiasts around the globe can use it for two-way radio relay communications.

2. CAS-10 carries a camera, and the pictures it takes are stored in the flash memory on the satellite, we have designed a simple remote control system based on DTMF, and amateur radio enthusiasts around the globe can send DTMF commands to download the camera photos.

3. CW beacon uses Morse code to send satellite telemetry data, which is also a feature that is widely welcomed by amateur radio enthusiasts.

Downlink frequencies for VHF/UHF linear transponder 435.180 MHz, for UHF CW telemetry beacon 435.575 MHz and for telemetry 435.725 MHz. Also an uplink for the transponder 145.870 MHz have been coordinated.

[ANS thanks Southgate Amateur Radio News for the above information.]

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Want to fly the colors on your own grid expedition?  
Get your AMSAT car flag and other neat stuff  
from our Zazzle store!  
25% of the purchase price of each product goes  
towards Keeping Amateur Radio in Space  
[https://www.zazzle.com/amsat\\_gear](https://www.zazzle.com/amsat_gear)

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#### ARISS NEWS

Amateurs and others around the world may listen in on contacts between amateurs operating in schools and allowing students to interact with astronauts and cosmonauts aboard the International Space Station. The downlink frequency on which to listen is 145.800 MHz worldwide.

##### + Completed Contacts

Amur State University, Blagoveshchensk, Russia, direct.

The ISS callsign was RSØISS.

The downlink frequency was 145.800 MHz.

The crewmember was Sergey Prokopyev.

Contact was successful on Monday, September 26, 2022 at 08:20 UTC.

New England Sci-Tech, Natick, MA, telebridge via ON4ISS.

The downlink frequency was 145.800 MHz.

The crewmember was Bob Hines KI5RQT.

Contact was successful Tuesday, September 27 2022 at 18:30 UTC.

##### + Upcoming Contacts

St. Stephen's Episcopal School Houston, Houston, TX, direct via KG5QN0.

The ISS callsign is presently scheduled to be NA1SS.

The downlink frequency is presently scheduled to be 145.800 MHz.

The scheduled crewmember is Bob Hines KI5RQT.

Contact is go for Monday, October 3, 2022 at 18:07 UTC.

The latest information on the operation mode can be found at

<https://www.ariss.org/current-status-of-iss-stations.html>

The latest list of frequencies in use can be found at <https://www.ariss.org/contact-the-iss.html>

[ANS thanks Charlie Sufana, AJ9N, one of the ARISS operation team mentors for the above information.]

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AMSAT, along with our ARISS partners, is developing an Amateur  
Radio package, including two-way communication capability, to  
be carried on-board Gateway in lunar orbit.

Support AMSAT's projects today at <https://www.amsat.org/donate/>

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#### Upcoming Satellite Operations

JQ78TF: October 5, 2022

LA7XK/JW7XK will start in the evening on October, 5 and end in the morning on October 10. He will be QRV on RS-44 from Longyearbyen on Svalbard.

IN70, IN79: October 11-16, 2022

M1DDD will be operating 'holiday style' from his the base camp in I070. Hopefully a full day operation in IN79 on FM and linear birds. Possibly operation in IN69 will be for a few hours one afternoon on FM only. Updates on Twitter and <http://hams.at>

DN72, DN73, DN82, DN83, DN92, DN93: October 4-6, 2022

AD0HJ, Mitch, is going to check out the ARRL Rocky Mountain Division Convention. He will be making several stops on the way to do satellite activations from these six lonely grid squares.

[ANS thanks Paul Overn, KE0PBR, AMSAT rover page manager, for the above information.]

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### Hamfests, Conventions, Maker Faires, and Other Events

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

#### + 40th Annual AMSAT Space Symposium and General Meeting

October 21-22, 2022

The Crowne Plaza Suites, 3 Appletree Square, Bloomington, MN

More information to follow.

#### + 2022 Rocky Mountain ARRL Division Convention

October 7-9, 2022

Event Center at Archer

3921 Archer Pkwy

Cheyenne, Wyoming 82007

<https://wyhamcon.org/site>

#### + 2022 AMSAT-UK International Space Colloquium

October 8-9, 2022

Kents Hill Park Conference Centre, Milton Keynes

<https://rsgb.org/main/about-us/rsgb-convention/>

[ANS thanks Paul Overn, KE0PBR, AMSAT Events page manager, for the above information.]

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### Satellite Shorts From All Over

+ NASA and SpaceX signed an unfunded Space Act Agreement Thursday, Sept. 22, to study the feasibility of a SpaceX and Polaris Program idea to boost the agency's Hubble Space Telescope into a higher orbit with the Dragon spacecraft, at no cost to the government. There are no plans for NASA to conduct or fund a servicing mission or compete this opportunity; the study is designed to help the agency understand the commercial possibilities. Teams expect the study to take up to six months, collecting technical data from both Hubble and the SpaceX Dragon spacecraft. This data will help determine whether it would be possible to safely rendezvous, dock, and move the telescope into a more stable orbit. Complete information at <https://tinyurl.com/ANS-275-Hubble-Boost>. [ANS thanks SpaceRef.com for the above information.]

+ After 10 months flying in space, NASA's Double Asteroid Redirection Test (DART) – the world's first planetary defense technology demonstration – successfully impacted its asteroid target on Monday, the agency's first attempt to move an asteroid in space. The investigation team will now observe Dimorphos using ground-based telescopes to confirm that DART's impact altered the asteroid's orbit around Didymos. Researchers expect the impact to shorten Dimorphos' orbit by about 1%, or roughly 10 minutes; precisely measuring how much the asteroid was deflected is one of the primary purposes of the full-scale test. Full details at <https://tinyurl.com/ANS-275-DART>. [ANS thanks NASA for the above information.]

+ Moonhack is an online coding challenge for young learners and celebrates humans' technological achievements. The 2022 event takes place from 10 to 23 October to coincide with World Space Week, and it features six brand-new projects that show how satellites can help us live more sustainably. Moonhack is free and open to any young coder, whether they are part of a Code Club or not. The projects are already available in English, French, Dutch, and Greek. Arabic and Latin American Spanish versions are in preparation. More information at <https://www.raspberrypi.org/blog/moonhack-2022/>. [ANS thanks the Raspberry Pi Foundation for the above information.]

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Join AMSAT today at <https://launch.amsat.org/>

In addition to regular membership, AMSAT offers membership to:

- \* Societies (a recognized group, clubs or organization).
- \* Primary and secondary school students are eligible for membership at one-half the standard yearly rate.
- \* Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status.
- \* Memberships are available for annual and lifetime terms.

Contact info [at] [amsat.org](https://amsat.org) for additional membership information.

73 and remember to help Keep Amateur Radio in Space!

This week's ANS Editor, Frank Karnauskas, N1UW  
nluw at amsat dot org